CLAIMS

I/We claim:

1. A method for assembling a plurality of printed circuit boards at a printed circuit board assembly facility, comprising:

   producing a first solder paste stencil based on a first solder paste stencil data set;

   utilizing the first solder paste stencil to apply solder paste to a first printed circuit board at a printed circuit board assembly facility;

   identifying a solder paste error condition with solder paste error information on the first printed circuit board;

   transmitting the solder paste error information for remote analysis;

   generating an adjusted first solder paste stencil data set;

   transmitting the adjusted first solder paste stencil data set to the printed circuit board assembly facility;

   utilizing the adjusted first solder paste stencil data set to produce an adjusted first solder paste stencil based on the adjusted first solder paste stencil data; and

   utilizing the adjusted first solder paste stencil to assemble a second printed circuit board without the solder paste error condition.

2. A method for assembling a plurality of printed circuit boards at a printed circuit board assembly facility as recited in claim 1, and further wherein the solder paste stencil data set is transmitted from the remote

location directly to the solder paste stencil production machine in the printed circuit board assembly facility.

3. A method for assembling a plurality of printed circuit boards at a printed circuit board assembly facility as recited in claim 2, and further wherein the solder paste stencil data set is transmitted from the remote location directly to the solder paste stencil production machine in the printed circuit board assembly facility via a public communication network.

4. A method for assembling a plurality of printed circuit boards at a printed circuit board assembly facility as recited in claim 2, and further wherein the solder paste stencil data set is transmitted from the remote location directly to the solder paste stencil production machine in the printed circuit board assembly facility via a private intranet communication network.

5. A method for assembling a plurality of printed circuit boards at a printed circuit board assembly facility as recited in claim 1, and further wherein the printed circuit board is a first printed circuit board, and further comprising:

identifying a solder paste error condition with solder paste error information on the first printed circuit board;

transmitting the solder paste error information to the remote location for analysis;

generating an adjusted first solder paste stencil data set at the remote location;

transmitting the adjusted first solder paste stencil data set to the printed circuit board assembly facility;

utilizing the adjusted first solder paste stencil data set to produce an adjusted first solder paste stencil based on the adjusted first solder paste stencil data; and

utilizing the adjusted first solder paste stencil to assemble a second printed circuit board without the solder paste error condition.

6. A method for assembling a plurality of printed circuit boards at a printed circuit board assembly facility, comprising:

providing a solder paste stencil production machine at the printed circuit board assembly facility, the solder paste stencil production machine being configured to produce a solder paste stencil suitable for use to apply solder to a printed circuit board;

transmitting printed circuit board data regarding the printed circuit board to a remote location for manipulation;

manipulating the printed circuit board data at the remote location to generate a solder paste stencil data set;

transmitting the solder paste stencil data set from the remote location to the printed circuit board assembly facility; and

utilizing the solder paste stencil data set in the solder paste stencil production machine to produce the solder paste stencil suitable for use to apply solder to the printed circuit board.

7. A method for assembling a plurality of printed circuit boards at a printed circuit board assembly facility as recited in claim 6, and further wherein the solder paste stencil data set is transmitted from the remote location directly to the solder paste stencil production machine in the printed circuit board assembly facility.

8. A method for assembling a plurality of printed circuit boards at a printed circuit board assembly facility as recited in claim 7, and further wherein the solder paste stencil data set is transmitted from the remote location directly to the solder paste stencil production machine in the printed circuit board assembly facility via a public communication network.

9. A method for assembling a plurality of printed circuit boards at a printed circuit board assembly facility as recited in claim 7, and further wherein the solder paste stencil data set is transmitted from the remote location directly to the solder paste stencil production machine in the

printed circuit board assembly facility via a private intranet communication network.

10. A method for assembling a plurality of printed circuit boards at a printed circuit board assembly facility as recited in claim 6, and further wherein the printed circuit board is a first printed circuit board, and further comprising:

identifying a solder paste error condition with solder paste error information on the first printed circuit board;

transmitting the solder paste error information to the remote location for analysis;

generating an adjusted first solder paste stencil data set at the remote location;

transmitting the adjusted first solder paste stencil data set to the printed circuit board assembly facility;

utilizing the adjusted first solder paste stencil data set to produce an adjusted first solder paste stencil based on the adjusted first solder paste stencil data; and

utilizing the adjusted first solder paste stencil to assemble a second printed circuit board without the solder paste error condition.

11. A solder paste stencil production system, comprising:

a workpiece holding framework configured to retain a first stencil workpiece;

a laser cutting device positioned relative to the workpiece holding framework to enable it to cut the first stencil workpiece retained in the workpiece holding framework;

a motion system operatively connected to one of the laser cutting device and workpiece holding framework, such that movement generated by the motion system causes the laser cutting device to cut a desired pattern on the first stencil workpiece;

> the motion system further utilizing a stencil data set defining the movement to be generated by the motion system to cut the first stencil workpiece;

a communication port configured for connection between the motion system and a remote location, to receive an electronic transmission of an adjusted stencil data set for use by the motion system in laser cutting an adjusted desired pattern on a second stencil workpiece.